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EXAMINER  
ANNICK, C

ART UNIT  
2853

PAPER NUMBER

DATE MAILED: 04/13/98

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

Application No.

08/634,255

Applicant(s)

Ohkuma et al.

Examiner

Christina Annick

Group Art Unit

2108



☒ Responsive to communication(s) filed on Jan 30, 1998.

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claims

☒ Claim(s) 1, 2, and 4-15 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

☐ Claim(s) \_\_\_\_\_ is/are allowed.

☒ Claim(s) 1, 2, and 4-15 is/are rejected.

☐ Claim(s) \_\_\_\_\_ is/are objected to.

☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been  
☐ received.

☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_.

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

☐ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

2. Claims 1, 2, 4, and 8-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Ohkuma et al. (U.S. 5,478,606).

Ohkuma et al. discloses a liquid jet recording head which includes a member formed from a cured product of a resin composition comprising an epoxy and a photopolymerization initiator which acts to cure the epoxy (see column 5, lines 35-60). The resin composition which also includes a compound which contains functional group which reacts with the curable epoxy as well as a fluorocarbon moiety, is subjected to cationic polymerization and (see column 5, lines 61-68 and column 6, lines 4-6). Note: Although the reference does not specifically disclose that this compound contains a reactive "functional group" this group is inherently disclosed since the reference does disclose that this compound "reacts" with the curable epoxy which in most cases involves a functional group (see column 6, lines 1-6). The resin composition of Table 1 indicates that the compound which has the functional group which reacts with the curable epoxy is

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contained within the resin with in the range of 1-50%. In addition, the compound which contains a fluorocarbon moiety (see column 6, line 6) contains fluorine at an amount of ~30% which is well within the range specified. A curing agent is also disclosed in column 5, lines 55-60. Further, the curable epoxy compound is an aromatic epoxy compound such as bisphenol A (see column 5, lines 35-36). The curable epoxy compound disclosed also includes an alicyclic epoxy compound which is an epoxy compound having an oxycyclohexane skeleton (see column 5, lines 35-42). The reference also discloses a method of making the liquid jet recording head which entails forming an ink flow path pattern from a soluble resin on an ink discharge pressure-generating element on a base plate, forming a coating resin layer on the soluble resin layer, removing of the soluble resin layer by elution, and forming a discharge opening through the coating resin layer (see column 2, lines 28-42). In addition, the reference discloses the a the method of forming the discharge opening is accomplished by the well known technique of photolithography (see column 4, lines 28-32). Finally, it is well known in the art to form discharge openings by either oxygen plasma etching or excimer laser irradiation. In any event, Ohkuma et al. discloses in column 7, lines 29-30 that the discharge openings can be formed by either of these methods.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

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such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohkuma et al. (U.S. 5,478,606) in view of Field et al. (U.S. 3,852,222).

Ohkuma et al. discloses the claimed invention except for the functional group which reacts with the curable epoxy being a hydroxyl group, and where the compound has the structure of an aromatic or alkyl fluorinated diol. Field et al. teaches that it is known to use aromatic and alkyl diols which contain hydroxyl functional groups as compounds useful for polymerization reactions as set forth in column 2, lines 13-20. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use aromatic and alkyl diols which contain hydroxyl functional groups as the compound which reacted with the curable epoxy of Ohkuma et al. as taught by Field et al. in order to provide a polymeric coating to the liquid jet recording head which is highly hydrophobic and therefore extends the life of the liquid jet recording head.

#### ***Response to Arguments***

5. Applicant's arguments filed 1/30/98 have been fully considered but they are not persuasive.

Applicant has argued that Ohkuma et al. does not disclose a compound having a functional group reactive to the epoxy compound and a fluorocarbon moiety. Applicant's attention is directed to Table 1 which is found in column 9 of Ohkuma et al., which discloses

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“butylphenyliodonium hexafluoroantimonate” as a “Cationic photopolymerization initiator”. This compound constitutes a compound having a functional group reactive to the epoxy compound and a fluorocarbon moiety.

Next, Applicant urges that Ohkuma et al. cannot be combined with Field et al. because Field et al. teaches that fluorinated diols are used to render a material “hydrophobic” while “..the present invention, improves (i.e., reduces) water absorption with out exhibiting high water repellency”. Firstly, since Ohkuma et al. and Filed combined disclose or teach all the chemical compounds of the invention, it would be expected that the chemical compounds of Ohkuma et al. and Field et al. would perform in the same manner in reference water absorption/water repellency factors. Secondly, it is not clear what the difference between reducing water absorption, and increasing water repellency is. These seem like similar concepts. Further, it is well known to vary the quantity of fluorine in a resin in order to control the amount of water absorption/water repellency capabilities of a resin.

Finally, Applicant has argued that Miyagawa et al. does not qualify as prior art under 35 U.S.C.102, because of common inventorship and publication date after the priority date. Applicant is correct, and therefore the rejections of claims 14 and 15 have been rejected under Ohkuma et al. above.

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***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Annick whose telephone number is (703) 308-6398. The examiner can normally be reached on Monday to Friday from 8:00 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Benjamin Fuller, can be reached on (703) 308-1782. The fax phone number for this Group is (703) 305-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-1782.

  
Christina Annick

April 7, 1998



VALERIE LUND  
PRIMARY EXAMINER  
GROUP 2100